

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims

1-72. (Canceled)

73. (Currently Amended) A process for detecting ~~a marker~~ analytes in a sample comprising the following steps:

(a) providing a sample comprising a first and a second ~~marker~~ detectable analyte;

(b) contacting the sample with a first recognition species that recognizes the first ~~marker~~ detectable analyte;

(c) contacting the sample with a second recognition species that recognizes both the first ~~marker~~ detectable analyte and the second ~~marker~~ detectable analyte;

(d) contacting the sample with a third recognition species that recognizes the second ~~marker~~ detectable analyte; and

(e) detecting the presence of a complex comprising the first, second, and third recognition species;

wherein at least one of the first detectable analyte, second detectable analyte, first recognition species, second recognition species, or third recognition species comprises a nucleic acid.

74. (Previously Presented) The detection process according to claim 73, wherein the first recognition species is immobilized on a support.

75. (Previously Presented) The detection process according to claim 74, wherein the support is a solid or gelatinous material.

76. (Previously Presented) The detection process of claim 75, wherein the solid or gelatinous material is selected from the group consisting of ceramic, metal, glass, plastic, crystalline material, cellulose, and structural proteins.

77. (Currently Amended) The detection process according to one of claim 73, wherein at least one of the first recognition species, the second recognition species, the third recognition species, the first detectable analyte, marker, and the second detectable analyte marker is selected from the group consisting of a peptide, peptoid, protein, saccharide, and a nucleic acid.

78. (Withdrawn) The detection process according to claim 73, wherein at least one of the first recognition species, the second recognition species, the third recognition species, the first marker, and the second marker is selected from the group consisting of an extracellular domain of a membrane-based receptor, an antibody or a functional part thereof, an Fv fragment, a single-chain Fv fragment (ScFv), and a Fab fragment.

79. (Withdrawn) The detection process according to claim 73, wherein at least one of the first recognition species, the second recognition species, the third recognition species, the first marker, and the second marker is a cell or a cell constituent selected from

the group consisting of a lipid, glycoprotein, filament constituent, lectin, liposome, mitogen, antigen, secondary metabolite, and hapten.

80. (Withdrawn) The detection process according to claim 73, wherein at least one of the first recognition species, the second recognition species, the third recognition species, the first marker, and the second marker is a virus or a virus constituent selected from the group consisting of a capsid, and a viroid.

81. (Currently Amended) The detection process according to claim 73, wherein at least one of the first recognition species, the second recognition species, the third recognition species, the first detectable analyte marker, and the second detectable analyte marker is a single-stranded or double-stranded nucleic acid selected from the group consisting of DNA, RNA, p-RNA, p-DNA, PNA, and CNA.

82. (Currently Amended) The detection process according to claim 73, wherein at least one of the first recognition species, the second recognition species, and the third recognition species interacts with at least one of the first detectable analyte marker and the second detectable analyte marker by means of a non-covalent interaction selected from the group consisting of hydrogen bonds, salt bridges, stacking, formation of metal ligands, charge-transfer complexes, Van-der-Waals forces, and hydrophobic interactions.

83. (Previously Presented) The detection process according to claim 73, wherein at least one of the first recognition species, the second recognition species, and the third recognition species is coupled to a label.

84. (Previously Presented) The detection process according to claim 73, wherein at least two of the first recognition species, the second recognition species, and the third recognition species are coupled to different labels.

85. (Currently Amended) The detection process according to claim 73, wherein at least one of the first detectable analyte marker and the second detectable analyte marker is selected from the group consisting of a LOCI label, FRET label, fluorescence quenching label, SPA label, fluorescence label, enzymatic label, redox label, and spin label.

86. (Currently Amended) The detection process according to claim 85, wherein a signal from at least one of the first detectable analyte marker and the second detectable analyte marker is amplified.

87. (Previously Presented) The detection process according to claim 73, wherein the step of detecting the presence of the complex is carried out competitively.

88. (Currently Amended) The detection process according to claim 73, wherein at least one of the first detectable analyte marker and the second detectable analyte marker is a natural or unnatural, single-stranded or double-stranded nucleic acid and the other of the first detectable analyte marker or the second detectable analyte marker is an antigen.

89. (Currently Amended) The detection process according to claim 73, wherein at least one of the first detectable analyte marker and second detectable analyte marker is a natural or unnatural, single-stranded or double-stranded nucleic acid and at least one of the first recognition species, the second recognition species, and the third recognition species is a natural or unnatural, single-stranded or double-stranded nucleic acid.

90. (Withdrawn) The detection process according to claim 73, wherein at least one of the first marker and second marker is an antigen and at least one of the first recognition species, the second recognition species, and the third recognition species is an antibody or an antibody derivative.

91. (Previously Presented) The detection process according to claim 73, wherein at least one of the first recognition species, the second recognition species, and the third recognition species is a natural or unnatural, single-stranded or double-stranded nucleic acid and at least one of the remaining first recognition species, the second recognition species, and the third recognition species is an antibody or an antibody derivative.

92. (Previously Presented) The detection process according to claim 73, wherein the first recognition species, the second recognition species, and the third recognition species are each a natural or unnatural, single-stranded or double-stranded nucleic acid.

93. (Withdrawn) The detection process according to claim 73, wherein the first recognition species, the second recognition species, and the third recognition species are each an antibody or antibody derivative.

94. (Previously Presented) The detection process according to claim 73, wherein at least one of the first recognition species, the second recognition species, and the third recognition species is a composite of a first natural or unnatural, single-stranded or double-stranded nucleic acid and a second natural or unnatural, single-stranded or double-stranded nucleic acid.

95. (Withdrawn) The detection process according to claim 73, wherein at least one of the first recognition species, the second recognition species, and the third recognition species is a composite of a first antibody or antibody derivative and a second antibody or antibody derivative.

96. (Previously Presented) The detection process according to claim 73, wherein at least one of the first recognition species, the second recognition species, and the third recognition species is a hybrid comprising a natural or unnatural, single-stranded or double-stranded nucleic acid and an antibody or antibody derivative.

97. (Previously Presented) The detection process according to claim 73, wherein the first recognition species is a natural or unnatural, single-stranded or double-stranded nucleic acid and the second recognition species is a hybrid comprising a natural or unnatural, single-stranded or double-stranded nucleic acid and an antibody or antibody derivative.

98. (Previously Presented) The detection process according to claim 73, wherein the first recognition species is a natural or unnatural, single-stranded or double-stranded nucleic acid;

wherein the second recognition species is a hybrid comprising a first natural or unnatural, single-stranded or double-stranded nucleic acid and a second natural or unnatural, single-stranded or double-stranded nucleic acid; and

wherein the third recognition species is a natural or unnatural, single-stranded or double-stranded nucleic acid.

99. (Withdrawn) The detection process according to claim 73,
wherein the first recognition species is an antibody or an antibody derivative;
wherein the second recognition species is an antibody or an antibody derivative; and
wherein the third recognition species is a is an antibody or an antibody derivative.

100. (Currently Amended) The detection process according to claim 73, wherein at
least one of the first detectable analyte marker and the second detectable analyte marker is a
disease pathogen, disease marker, toxin, and allergen.

101. (Currently Amended) A process for detecting analytes ~~a marker~~ in a sample comprising the following steps:

- (a) providing a sample comprising a first and a second ~~marker~~ detectable analyte;
- (b) contacting the sample with a first recognition species that recognizes the first ~~marker~~ detectable analyte;
- (c) contacting the sample with a second recognition species, wherein the second recognition species recognizes the first ~~marker~~ detectable analyte and a third recognition species, wherein the third recognition species recognizes the second ~~marker~~ detectable analyte and the second recognition species;
- (d) contacting the sample with the third recognition species; and
- (e) detecting the presence of a complex comprising the first, second, and third recognition species

wherein at least one of the first detectable analyte, second detectable analyte, first recognition species, second recognition species, or third recognition species comprises a nucleic acid.

102. (Previously Presented) The detection process according to claim 101, wherein the first recognition species is immobilized on a support.

103. (Previously Presented) The detection process according to claim 101, wherein the support is a solid or gelatinous material.

104. (Previously Presented) The detection process of claim 103, wherein the solid or gelatinous material is selected from the group consisting of ceramic, metal, glass, plastic, crystalline material, cellulose, and structural proteins.

105. (Currently Amended) The detection process according to one of claim 101, wherein at least one of the first recognition species, the second recognition species, the third recognition species, the first detectable analyte, marker, and the second detectable analyte marker is selected from the group consisting of a peptide, peptoid, protein, saccharide, and a nucleic acid.

106. (Withdrawn) The detection process according to claim 101, wherein at least one of the first recognition species, the second recognition species, the third recognition species, the first marker, and the second marker is selected from the group consisting of an extracellular domain of a membrane-based receptor, an antibody or a functional part thereof, an Fv fragment, a single-chain Fv fragment (ScFv), and a Fab fragment.

107. (Withdrawn) The detection process according to claim 101, wherein at least one of the first recognition species, the second recognition species, the third recognition species, the first marker, and the second marker is a cell or a cell constituent selected from the group consisting of a lipid, glycoprotein, filament constituent, lectin, liposome, mitogen, antigen, secondary metabolite, and haptan.

108. (Withdrawn) The detection process according to claim 101, wherein at least one of the first recognition species, the second recognition species, the third recognition

species, the first marker, and the second marker is a virus or a virus constituent selected from the group consisting of a capsid, and a viroid.

109. (Currently Amended) The detection process according to claim 101, wherein at least one of the first recognition species, the second recognition species, the third recognition species, the first detectable analyte, marker, and the second detectable analyte marker is a single-stranded or double-stranded nucleic acid selected from the group consisting of DNA, RNA, p-RNA, p-DNA, PNA, and CNA.

110. (Currently Amended) The detection process according to claim 101, wherein at least one of the first recognition species, the second recognition species, and the third recognition species interacts with at least one of the first detectable analyte marker and the second detectable analyte marker by means of a non-covalent interaction selected from the group consisting of hydrogen bonds, salt bridges, stacking, formation of metal ligands, charge-transfer complexes, Van-der-Waals forces, and hydrophobic interactions.

111. (Previously Presented) The detection process according to claim 101, wherein at least one of the first recognition species, the second recognition species, and the third recognition species is coupled to a label.

112. (Previously Presented) The detection process according to claim 101, wherein at least two of the first recognition species, the second recognition species, and the third recognition species are coupled to different labels.

113. (Currently Amended) The detection process according to claim 101, wherein at least one of the first detectable analyte marker and the second detectable analyte marker is selected from the group consisting of a LOCI label, FRET label, fluorescence quenching label, SPA label, fluorescence label, enzymatic label, redox label, and spin label.

114. (Currently Amended) The detection process according to claim 113, wherein a signal from at least one of the first detectable analyte marker and the second detectable analyte marker is amplified.

115. (Previously Presented) The detection process according to claim 101, wherein the step of detecting the presence of the complex is carried out competitively.

116. (Currently Amended) The detection process according to claim 101, wherein at least one of the first detectable analyte marker and the second detectable analyte marker is a natural or unnatural, single-stranded or double-stranded nucleic acid and the other of the first detectable analyte marker or the second detectable analyte marker is an antigen.

117. (Currently Amended) The detection process according to claim 101, wherein at least one of the first detectable analyte marker and second detectable analyte marker is a natural or unnatural, single-stranded or double-stranded nucleic acid and at least one of the first recognition species, the second recognition species, and the third recognition species is a natural or unnatural, single-stranded or double-stranded nucleic acid.

118. (Withdrawn) The detection process according to claim 101, wherein at least one of the first marker and second marker is an antigen and at least one of the first

recognition species, the second recognition species, and the third recognition species is an antibody or an antibody derivative.

119. (Previously Presented) The detection process according to claim 101, wherein at least one of the first recognition species, the second recognition species, and the third recognition species is a natural or unnatural, single-stranded or double-stranded nucleic acid and at least one of the remaining first recognition species, the second recognition species, and the third recognition species is an antibody or an antibody derivative.

120. (Previously Presented) The detection process according to claim 101, wherein the first recognition species, the second recognition species, and the third recognition species are each a natural or unnatural, single-stranded or double-stranded nucleic acid.

121. (Withdrawn) The detection process according to claim 101, wherein the first recognition species, the second recognition species, and the third recognition species are each an antibody or antibody derivative.

122. (Previously Presented) The detection process according to claim 101, wherein at least one of the first recognition species, the second recognition species, and the third recognition species is a composite of a first natural or unnatural, single-stranded or double-stranded nucleic acid and a second natural or unnatural, single-stranded or double-stranded nucleic acid.

123. (Withdrawn) The detection process according to claim 101, wherein at least one of the first recognition species, the second recognition species, and the third recognition

species is a composite of a first antibody or antibody derivative and a second antibody or antibody derivative.

124. (Previously Presented) The detection process according to claim 101, wherein at least one of the first recognition species, the second recognition species, and the third recognition species is a hybrid comprising a natural or unnatural, single-stranded or double-stranded nucleic acid and an antibody or antibody derivative.

125. (Previously Presented) The detection process according to claim 101, wherein the first recognition species is a natural or unnatural, single-stranded or double-stranded nucleic acid and the second recognition species is a hybrid comprising a natural or unnatural, single-stranded or double-stranded nucleic acid and an antibody or antibody derivative.

126. (Previously Presented) The detection process according to claim 101, wherein the first recognition species is a natural or unnatural, single-stranded or double-stranded nucleic acid;

wherein the second recognition species is a hybrid comprising a first natural or unnatural, single-stranded or double-stranded nucleic acid and a second natural or unnatural, single-stranded or double-stranded nucleic acid; and

wherein the third recognition species is a natural or unnatural, single-stranded or double-stranded nucleic acid.

127. (Withdrawn) The detection process according to claim 101, wherein the first recognition species is an antibody or an antibody derivative;

wherein the second recognition species is an antibody or an antibody derivative; and
wherein the third recognition species is a is an antibody or an antibody derivative.

128. (Currently Amended) The detection process according to claim 101, wherein
at least one of the first detectable analyte marker and the second detectable analyte marker is
a disease pathogen, disease marker, toxin, and allergen.